EXPRESS MAIL NO. EE724655761US

SPORTS TRAINING AND CONDITIONING DEVICE

BACKGROUND OF THE INVENTION

This invention relates to a sports training and conditioning device, and in particular to a device for training and conditioning in sports which use an implement, such as a bat, a club, a racket, or stick.

There are a wide variety of sports training and conditioning devices for sports that employ some sort of implement. A common example is the batting doughnut, which is slipped over the narrow end of the bat and slid down the shaft of the bat to add extra weight to the end of the bat while taking practice swings. Similar devices are available for golf clubs and for other sports implements. One drawback with these devices is that the extra weight is usually concentrated at the remote or distal end of the sports implement. This unnecessarily strains the user, and particularly the user's shoulders, and does not concentrate the training and conditioning on the user's forearms which, in most sports, are critical to the proper use of the implement

SUMMARY OF THE INVENTION

The sports training and conditioning device of the present invention is adaptable to virtually any sport that uses a hand-held implement, including baseball, golf, tennis, squash, badminton, hockey, lacrosse, et cetera. Generally, the sports training and conditioning device of the present invention comprises a handle shaped like the grip portion of the implement for the particular sport, for example a baseball bat, having a first and second ends. A weight is mounted on the second end between about six inches and about eighteen inches from the first end of the handle, and more preferably between about eight inches and about thirteen inches from the first end of the grip. The inventor has found that for most sports, this focuses the effect of the device on the user's forearms, and reduces the stress and strain on other parts of the body. The user simply grasps the device as the user would normally grasp the sports implement, and swings the device in a controlled manner just as the user would swing the implement.

In the preferred embodiment, the circumference of the handle is between about ten percent and about thirty percent larger than the user would normally use on the corresponding sports implement, and more preferably about 20 percent larger. The inventor has found that this increased circumference of the handle further focuses the effect of the device on the forearms.

The sports training and conditioning devices of the present invention are of simple and inexpensive construction. They are compact and easy to store and transport. The devices provide sports-specific strengthening and conditioning, focusing on the user's forearms while minimizing stress and strain on other parts of the user's body, such as the shoulder and wrists. Using the device during practice helps program a proper motion through "muscle memory". These and other features and advantages will be in part apparent and in part pointed out hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of a first embodiment of a sports training device constructed according to the principles of this invention;

Fig. 2 is a perspective view of the device of the first embodiment, disassembled to show the details of construction;

Fig. 3 is a longitudinal cross-sectional view of the device of the first embodiment, showing details of construction;

Fig. 4 is a perspective view of a first alternate construction of the device of the first embodiment;

Fig. 5 is a longitudinal cross sectional view of a second alternate construction of the device of the first embodiment;

Fig. 6 is a perspective view of a second embodiment of a sports training device constructed according to the principles of this invention, with a portion broken away to reveal details of construction;

Fig. 7 is a perspective view of a second embodiment of a sports training device constructed according to the principles of this invention, with a portion broken away to reveal details of construction; and

Fig. 8 is a perspective view of a second embodiment of a sports training device constructed according to the principles of this invention, with a portion broken away to reveal details of construction.

Corresponding reference numerals indicate corresponding parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE INVENTION

A first embodiment of a sports training and conditioning device constructed according to the principles of this invention is indicated generally as 20 in Figs. 1 through 3. The device 20 is particular adapted for training and conditioning for sports which involve the use of an implement having a grip, *e.g.*, a bat, a club, a racket, or a stick, and in particular device 20 is adapted for training and conditioning for baseball, softball, and other sports which employ a bat. The device comprises a handle configured like the grip portion of the sports implement, thus device 20 has a grip configured like the handle portion of a bat, having a first end 24 and a second end 26. The first end 24 corresponds to the normal proximal end (*i.e.*, the end closest to the user) of the sports implement, the second end 26 corresponds to normal distal end (*i.e.*, the end furthest from the user). The handle 22 is preferably made of wood, like a conventional bat, but it could also be made of some other material.

In the preferred embodiment the circumference of the handle is preferably between about ten and about thirty percent larger than the grip portion of a conventional sports implement, and most preferably about twenty percent larger than the grip portion of a conventional sports implement. The inventor has discovered that this helps focus the effect of the device on the user's forearms, yet still permits the user to securely grasp the device. Thus, in the case of device 20, where a conventional bat would have a grip diameter of between about 7/8 inches and about 1 and 1/8 inches, the handle 22 preferably has a diameter of between about 1 1/4 inches and about 1 1/2 inches, and most preferably about 1 and 11/32 inches. The larger grip both isolates the forearms and safely strengthens the hands and wrists. However, the handle could have the circumference of a conventional bat.

A weight 28 is mounted on the second end 26 of the handle. The weight 28 is preferably made of steel, but could, of course be made of some other dense material. The length of the handle 22 and the size and shape of the weight 28 are such that the center of mass of the device is positioned distally of the graspable portion of the handle, between about 8 1/2 inches and about 15 inches from the first end 24 of the handle, and more preferably between about 10 and 13 inches from the first end of the handle. The weight of the weight 28 depends upon the needs and preferences of the user, the weight 28 may have a weight so that the device 20 weighs 3 1/2, 5, 7 1/2, 10, or 12 1/2, or preferably a set of devices 20 of different weights are provided.

As shown in the Figures, the weight 28 preferably has a generally cylindrical shape, and the top and bottom edges of the cylinder are preferably rounded. Of course the weight 28 could have some other shape, for example with a polygonal cross section, or the weight could be a rectangular prism. However, the inventor believes that the compact, cylindrical shape improves the swing dynamics of the device. In the preferred embodiment, the weight 28 for the 3 1/2 pound device has a diameter of about 2 3/8 inches, and is about 2 1/2 inches high; the weight for the 5 pound device has a diameter of about 3 inches, and is about 2 3/4 inches high; the weight for the 7 1/2 pound device has a diameter of about 3 1/2 inches, and is about 3 inches high; the weight for the 10 pound device has a diameter of about 3 3/4 inches, and is about 3 3/4 inches high; and the weight for the 12 1/2 pound device has a diameter of about 4 inches, and is about 4 inches high.

In the preferred construction of the first embodiment, the distal end 26 has external threaded projection 30 that is adapted to fit into an internally threaded socket 32 in the weight 28. The threaded projection 30 may be further secured in the socket 32 with an adhesive, such as an epoxy or other suitable adhesive. However, it may be desirable to have the weight 28 removably mounted on the handle 22, so that the user can have just one handle, and change the weight of the device 20 by changing the weight 28.

A first alternate construction of the first embodiment of a sports training and conditioning device is indicated generally as 20' in Fig. 4. The device 20' is similar in construction to device 20, comprising a handle 22 and a weight 28. However, in device

20' the attachment of the weight 28 to the handle 22 is different from the attachment in device 20. As shown in Fig. 4, there is a collar 34 with an internally threaded socket mounted on the second end 24 of the handle 22. The collar 34 is preferably made of metal and is secured on the handle by any conventional means. There is an externally threaded stud 38 on the weight 28 that threads into the internally threaded socket in the collar 34.

A second alternate construction of the first embodiment of a sports training and conditioning device is indicated generally as 20'' in Fig. 5. The device 20'' is similar in construction to device 20, comprising a handle 22 and a weight 28. However, in device 20'' the attachment of the weight 28 to the handle 22 is different from the attachment in device 20. As shown in Fig. 5, a threaded bolt 40 extends through an axial bore 42 in the handle 22, projecting out the second end 26 of the handle. The bolt 40 is preferably made of metal. The weight 28 preferably has an internally threaded socket 44 to receive the bolt 40. A nut 46 is threaded on the end of the bolt 40 and is concealed in a recess 48 in the first end of the handle.

A second embodiment of a sports training and conditioning device is indicated generally as 100 in Fig. 6. The device 100 is particularly adapted for training and conditioning for the sport of golf, and comprises a handle 102 configured like the grip portion of a golf club, having a first end 104 and a second end 106. The first end 104 corresponds to the normal proximal end (*i.e.*, the end closest to the user) of the sports implement, the second end corresponds to normal distal end (*i.e.*, the end furthest from the user).

In the preferred embodiment the circumference of the handle is preferably between about ten and about thirty percent larger than the grip portion of a conventional sports implement, and most preferably about twenty percent larger than the grip portion of a conventional sports implement. The inventor has discovered that this helps focus the effect of the device on the user's forearms, yet still permits the user to securely grasp the device. Thus, in the case of device 100, where a conventional golf club would have a grip circumference of between about 2 3/4 inches and about 3 inches, the handle 102 preferably has a circumference of between about 3 inches and about 3 1/2 inches. However, the handle could have the circumference of a conventional golf club.

A weight 108 is mounted on the second end 106 of the handle. The weight 108 is preferably made of steel, but could, of course, be made of some other dense material. The length of the handle 102 and the size and shape of the weight 108 are such that the center of mass of the device is positioned distally of the between about 8 inches and about 15 inches from the first end 104 of the device 100, and more preferably between about 10 and 13. The weight of the weight 108 depends upon the needs and preferences of the user, the weight 108 may have a weight so that the device 100 weighs 3 1/2, 5, 7 1/2, 10, or 12 1/2, or preferably a set of devices 100 of different weights are provided.

As shown in Fig. 6, the weight 108 preferably has a generally cylindrical shape, and the top and bottom edges of the cylinder are preferably rounded. Of course the weight 108 could have some other shape, for example with a polygonal cross section, or the weight could be a rectangular prism. In the preferred embodiment, the weight 108 for the 3 1/2 pound device has a diameter of about 2 3/8 inches, and is about 2 1/2 inches high; the weight for the 5 pound device has a diameter of about 3 inches, and is about 2 3/4 inches high; the weight for the 7 1/2 pound device has a diameter of about 3 1/2 inches, and is about 3 inches high; the weight for the 10 pound device has a diameter of about 3 3/4 inches, and is about 3 3/4 inches high; and the weight for the 12 1/2 pound device has a diameter of about 4 inches, and is about 4 inches high for the 3 1/2 pound device has a diameter of about 2 3/8 inches, and is about 2 1/2 inches high; the weight for the 5 pound device has a diameter of about 3 inches, and is about 2 3/4 inches high; the weight for the 7 1/2 pound device has a diameter of about 3 1/2 inches, and is about 3 inches high; the weight for the 10 pound device has a diameter of about 3 3/4 inches, and is about 3 3/4 inches high; and the weight for the 12 1/2 pound device has a diameter of about 4 inches, and is about 4 inches high.

In the preferred construction of the device 100, the grip 102 comprises a rod 110 with an externally threaded stud 112 on its distal end. The rod 110 is covered with a conventional golf club grip 114. The threaded stud 112 is adapted to fit in an internally threaded socket 116 in the weight 108. The threaded stud 112 may be further secured in the socket 116 with an adhesive, such as an epoxy or other suitable adhesive. However, it may be desirable to have the weight 108 removably mounted on the handle 102, so that the user can have just one handle, and change the weight of the device 100 by changing

the weight 108. Of course one of the other attachments for the weight and handle discussed above with respect to device 20, or any other method for securely connecting the weight and the handle can be used.

A third embodiment of a sports training and conditioning device is indicated generally as 150 in Fig. 7. The device 150 is particularly adapted for training and conditioning for the sport of tennis, and comprises a grip 152 configured like the handle portion of a tennis racket, having a first end 154 and a second end 156. The first end 154 corresponds to the normal proximal end (i.e., the end closest to the user) of the sports implement, the second end corresponds to normal distal end (i.e. the end furthest from the user).). The handle 152 is preferably made of wood, metal, or a composite material, like a conventional racket, but it could also be made of some other material.

In the preferred embodiment the circumference of the handle is preferably between about ten and about thirty percent larger than the grip portion of a conventional sports implement, and most preferably about twenty percent larger than the grip portion of a conventional sports implement. The inventor has discovered that this helps focus the effect of the device on the user's forearms, yet still permits the user to securely grasp the device. Thus, in the case of device 150, where a conventional racket would have a grip circumference of between about 4 1/4 inches and about 4 5/8 inches, the handle 152 preferably has a circumference of between about 4 3/8 inches and about 4 3/4 inches. However, the handle could have the circumference of a conventional racket. The handle 152 may include a conventional spiral wrap of leather or leather-like material, so that the handle 152 device 150 has the appearance and feel of the grip portion of a conventional racket.

A weight 158 is mounted on the second end 156 of the handle. The weight 158 is preferably made of steel, but could, of course be made of some other dense material. The length of the handle 152 and the size and shape of the weight 158 are such that the center of mass of the device 150 is positioned between about 8 inches and about 15 inches from the first end 154 of the handle, and more preferably between about 10 and 13 from the first end of the handle. The center of mass is preferably distal to the graspable portion of the handle. The weight of the weight 158 depends upon the needs and preferences of the

user, the weight 158 may have a weight so that the device 150 weighs 1 1/2, 2 1/2, 3 1/2, 4 1/2, or 5 1/2, or preferably a set of devices 150 of different weights are provided.

As shown in Fig. 7, the weight 158 preferably has a generally cylindrical shape, and the top and bottom edges of the cylinder are preferably rounded. Of course the weight 158 could have some other shape, for example with a polygonal cross section, or the weight could be a rectangular prism. In the preferred embodiment, the weight 158 for the 1 1/2 pound device has a diameter of about 1 7/8 inches, and is about 2 inches high; the weight for the 2 1/2 pound device has a diameter of about 2 1/8 inches, and is about 2 1/4 inches high; the weight for the 3 1/2 pound device has a diameter of about 2 3/8 inches, and is about 2 1/2 inches high; the weight for the 4 1/2 pound device has a diameter of about 2 1/2 inches, and is about 2 5/8 inches high; and the weight for the 5 1/2 device has a diameter of about 2 5/8 inches, and is about 2 7/8 inches high.

In the preferred construction of the third embodiment, there is a collar 160 with an internally threaded socket 162 mounted on the second end 154 of the handle 152. The collar 160 is preferably made of metal and is secured on the handle by any conventional means. There is an externally threaded stud 164 on the weight 158 that threads into the internally threaded socket in the collar 160. The threaded stud 164 may be further secured in the socket 160 with an adhesive, such as an epoxy or other suitable adhesive. . However, it may be desirable to have the weight 158 removably mounted on the handle 152, so that the user can have just one handle, and change the weight of the device 150 by changing the weight 158. Of course one of the other attachments for the weight and handle discussed above with respect to device 20, or any other method for securely connecting the weight and the handle can be used.

A fourth embodiment of a sports training and conditioning device is indicated generally as 200 in Fig. 8. The device 200 is particularly adapted for training and conditioning for the sport of hockey, and comprises a grip 202 configured like the handle portion of a hockey stock, having a first end 204 and a second end 206. The first end 204 corresponds to the normal proximal end (*i.e.*, the end closest to the user) of the sports implement, the second end corresponds to normal distal end (*i.e.*, the end furthest from

the user).). The handle 202 is preferably made of wood, like a conventional hockey stick, but it could also be made of some other material.

In the preferred embodiment the circumference of the handle is preferably between about ten and about thirty percent larger than the grip portion of a conventional sports implement, and most preferably about twenty percent larger than the grip portion of a conventional sports implement. The inventor has discovered that this helps focus the effect of the device on the user's forearms, yet still permits the user to securely grasp the device. Thus, in the case of device 200, where a conventional stick would have a grip circumference of between about 3 3/4 inches and about 4 1/4 inches, the handle 202 preferably has a circumference of between about 4 inches and about 4 1/2 inches. However, the handle could have the circumference of a conventional racket.

A weight 208 is mounted on the second end 206 of the handle. The weight 208 is preferably made of steel, but could, of course be made of some other dense material. The length of the handle 202 and the size and shape of the weight 208 are such that the center of mass of the device 200 is positioned between about 8 ½ inches and about 15 inches from the first end 204 of the handle, and more preferably between about 10 and 13 inches from the first end of the handle. The center of the mass of the device is preferably distal to the end of the graspable portion of the handle. The weight of the weight 208 depends upon the needs and preferences of the user, the weight 208 may have a weight so that the device 200 weighs 3 1/2, 5, 7 1/2, 10, or 12 1/2, or preferably a set of devices 200 of different weights are provided.

As shown in Fig. 8, the weight 208 preferably has a generally cylindrical shape, and the top and bottom edges of the cylinder are preferably rounded. Of course the weight 208 could have some other shape, for example with a polygonal cross section, or the weight could be a rectangular prism. However, the inventor believes that the compact, cylindrical shape improves the swing dynamics of the device. In the preferred embodiment, the weight 208 for the 3 1/2 pound device has a diameter of about 2 3/8 inches, and is about 2 1/2 inches high; the weight for the 5 pound device has a diameter of about 3 inches, and is about 2 3/4 inches high; the weight for the 7 1/2 pound device has a diameter of about 3 1/2 inches, and is about 3 inches high; the weight for the 10

pound device has a diameter of about 3 3/4 inches, and is about 3 3/4 inches high; and the weight for the 12 1/2 pound device has a diameter of about 4 inches, and is about 4 inches high.

In the preferred construction of the third embodiment, there is a collar 210 with an internally threaded socket 212 mounted on the second end 204 of the handle 202. The collar 210 is preferably made of metal and is secured on the handle by any conventional means. There is an externally threaded stud 214 on the weight 208 that threads into the internally threaded socket in the collar 210. The threaded stud 214 may be further secured in the socket 210 with an adhesive, such as an epoxy or other suitable adhesive. . However, it may be desirable to have the weight 208 removably mounted on the handle 202, so that the user can have just one handle, and change the weight of the device 200 by changing the weight 208. Of course one of the other attachments for the weight and handle discussed above with respect to device 20, or any other method for securely connecting the weight and the handle can be used.

Operation

In operation, any of the devices 20, 20', 20'', 100, 150, or 200 of this invention, is grasped by the user. (Of course a device can be constructed according to the principles of this invention for any sport in which the participant grasps and swings a sports implement.) The user then swings the device, much as the user would swing the implement which the device emulates. By controlling the size and shape and placement of the weight on the end of the handle, the training and conditioning effects are focused on the user's forearms. In particular, it is believe that by positioning the center of mass of the weight within 13 inches of the first end of the handle, the effect of the device is focused on the user's forearms. More specifically it is important that the center of mass of the device is past the graspable portion of the handle, yet within 13 inches of the first end of the handle.